

DRAFT

California Department of Transportation, District 12, Orange County, Traffic Management Center – a Regional TMC operated by the Public Sector

15.1 Introduction

The California Department of Transportation District 12 Traffic Management Center is the center of operations for freeway and highway facilities throughout the entire region of Orange County, California. The district encompasses a metropolitan area of 34 cities, 2.8 million people, and 137 highway miles, excluding tollways, in a nearly 800 square mile area.

Statewide, Caltrans has teamed extensively with the California Highway Patrol in the planning, design, implementation, and operations of a system of Traffic Management Centers. To provide a statewide approach to TMC planning and implementation, Caltrans has developed over-arching guiding principles and goals for how TMCs need to operate and function as part of regional transportation systems throughout the state. These principles and goals developed at the statewide level provide for enough flexibility for the various Caltrans District TMCs to be able to structure their operations to suit the unique needs of the Districts they serve, whether its hours of operation, specific functions (which will vary depending on how heavily urbanized the District is, and even key partnerships with other agencies. The District 12 TMC is exemplary of the benefits that can be realized when multiple agencies, and in particular the Highway Patrol, team to improve the management and response to incidents on the freeway and highway system.

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15.1.1 General System Description

The District 12 TMC gathers real-time information from multiple sources, including in-pavement sensors, CCTV cameras, ramp meter sensors, earthquake monitors, 911 telephone calls, officers on patrol, Caltrans maintenance crews, reports from motorists' cellular phones, and commercial traffic reporters. TMC Operators, in close coordination with CHP dispatchers, implement an appropriate incident response.

15.1.2 General Objectives of System

California has implemented a standardized development of traffic management systems, including traffic management centers. The *TMC Master Plan*, updated in 1997, and supplemented in 2002, defines the mission and vision, goals and objectives, development process, costs and benefits, regionalization, partnerships, management structure, operations, ITS and national architecture, and deployment milestones for the statewide system of traffic management centers. The TMC Master Plan states as goals of the TMC:

- To see the future potential and provide better service;
- Standardize systems, operations, and facilities to ensure cost-effectiveness, uniform functionality statewide, and to achieve economies of scale;
- Establish a regionalized structure that will provide an integrated, statewide framework for transportation management; and
- Enhance public and private partnerships that promote multimodal transportation activities and services.

Supporting these goals are objectives, including:

- Establish communications links to all TMCs to ensure remote operations during an emergency;
- To be proactive in developing new partnerships with other transportation stakeholders; and
- To create and maintain a reliable real-time traveler information system.

Orange County staff specifically stated their objectives of the District 12 TMC as:

- To detect incidents as quickly as possible; and
- To reduce freeway congestion.

15.2 Design and Implementation

The California Department of Transportation (Caltrans) operates and maintains a statewide system of traffic management centers. The state has directed that every Caltrans district will have a TMC, though the hours of operations, staffing, physical building size, and location will vary dependent upon local conditions and needs.

Caltrans recognizes the value of collocation of transportation and public safety. In fact, every Caltrans TMC must be able to accommodate California Highway Patrol presence, though the scope of the presence will vary depending on local needs. As an example, a TMC located in a large urban area will accommodate CHP presence during peak traffic congestion periods while a rural TMC may only have CHP presence during major emergencies.

Geographic Area Covered

The District 12 Traffic Management Center provides operations for the freeways throughout the entirety of Orange County.

Participating Agencies and Stakeholders

In addition to the California Department of Transportation, the California Highway Patrol dispatchers are located in the TMC.

While no other jurisdictions or agencies are collocated within the TMC, communications have been established with three cities, and a toll road operator:

- City of Anaheim – D12 TMC views cameras and changeable message signs, serving as secondary control;
- City of Santa Ana – D12 receives images of cameras located on arterials;

- City of Irvine – D12 receives images of cameras located on arterials; and
- Orange County Transportation Authority (Toll Road Operator) – D12 TMC provides secondary control of cameras located on 12 miles of toll roads.

TMC Functions

- Freeway Operations
- Caltrans Dispatch
- CHP Dispatch
- Freeway Service Patrol Fleet Management
- Centralized Ramp Meter Management
- Media Information
- Highway Advisory Radio Broadcast
- Travel Information
- Demonstration/Research/Training
- Emergency Operations Center
- Local Agencies Intertie
- Essential Service Standards Facility

Number and Type of Field Elements

- CCTV Cameras – 138 operational, 55 under construction, 100 in design
- Loop Detectors – 536 stations
- Ramp Meters – 347
- Changeable Message Signs – 55 operating, 20 in design
- Portable Changeable Message Sign Trucks – 6
- Highway Advisory Radio Transmitters – 2

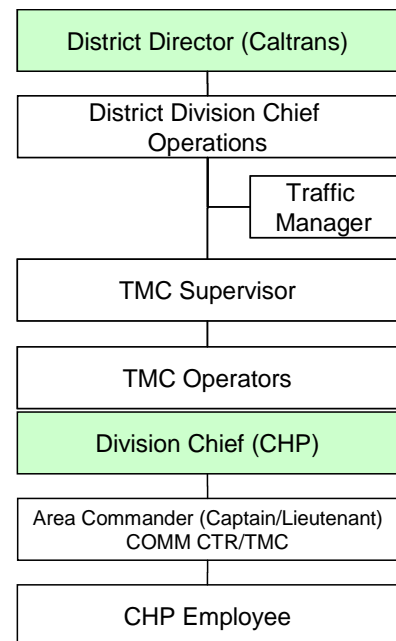
15.3 Organization and Management Structure

The District 12 TMC is part of the Caltrans statewide system of Traffic Management Centers. Caltrans has divided the state into three TMC regions – San Francisco Bay Area, Sacramento, and Los Angeles, with each region containing a Regional Traffic Management Center, and one or more Urban TMCs. The Orange County District 12 TMC is an Urban TMC, with communications established with the Regional TMC in Los Angeles. Regional TMC responsibilities include;

The D12 TMC is staffed entirely by Caltrans and CHP employees. While working closely together, the CHP and Caltrans employees fall within separate lines of authority.

Other positions at the TMC include:

- TMC Communications Dispatchers – Caltrans maintenance dispatch;
- Lane closures coordinator;
- Traffic signal operations;
- Traffic management team; and
- Freeway Service Patrol.



15.4 Implications for Business Plan

- Agencies may need to revise their business plan as conditions evolve, as demonstrated by the Caltrans experience. In 1993, Caltrans and the California Highway Patrol jointly developed and approved the first TMC Master Plan. The purpose of the plan was to serve as a blueprint for the coordinated development and deployment of TMCs statewide. In 1997, the TMC Master Plan was revised to include a standardized development process of traffic management systems, including traffic management centers. In 2002, Caltrans supplemented the 1997 TMC Master Plan with the TMC Development Considerations and Constraints document.
- The 1997 TMC Master Plan defines a mission and vision, goals and objectives, development process, costs and benefits, regionalization, partnerships, management structure, operations, ITS and national architecture, and deployment milestones for the statewide system of traffic management centers. The Master Plan emphasizes the necessity of statewide standardization in the establishment of a statewide network of TMCs that work interdependently with local agencies.
- The 1997 Master Plan requires TMCs to perform a needs analysis to justify initial development of a TMC, or to expand the role and operations of an existing TMC. The needs analysis should include staffing and space needs, funding sources to be identified, and approval of a detailed project information report.
- The 2002 supplement revisited the development phases of TMCs – basic, intermediate, and advanced – proposed in the 1997 TMC Master Plan. These initial stratifications were based on the functions that TMCs perform, their equipment, and staffing levels. The 2002 supplement recognized that TMC activities vary in complexity, rather than whether a particular function is performed or not. The revision recognizes that each TMC serves the same basic, core functions, and that categorizing TMCs into rural and urban is not a particularly useful tool in guiding the development of TMCs.
- The 2002 revision eliminated the distinction between urban and rural TMCs, as well as the nomenclature of urban, rural, or satellite operations centers. Rather, the document recommends that each Caltrans district have a TMC, outlines three TMC regions, and three regional TMCs.
- The TMC Master Plan emphasizes the role of partnerships to maximize the efficiency of existing transportation facilities, including the roles of Metropolitan Planning Organizations, local agency TMCs, local emergency responders, mass transit, academia, the media, FHWA, and private entities.